Design-Build Services for Parallel Thimble Shoal Tunnel Project
1.b. Executive Summary

CBBT’s goal of adding operational flexibility through providing a second two-lane tunnel under the Thimble Shoal navigation channel as economically as possible requires a team who can objectively analyze both tunnel options and provide you with the lowest cost technically viable solution. This iconic project requires a team….

- with proven technical expertise in the design and construction of bored and immersed tube tunnels
- that understands and has successfully mitigated the risks associated with technically challenging projects both domestically and internationally
- that has time and time again demonstrated its willingness to have open and honest dialog and partner with Owners to “Deliver the Promise”
- that can objectively analyze both tunnel options and is willing to invest and commit the resources during the tender phase to provide CBBT with the lowest cost technically viable tunnel solution

**AWVC Tunnelbuilders is that Team!**

Comprised of Archer Western Construction and VINCI Construction Grands Projets with AECOM as the lead designer, this team’s qualification in delivering design-build bored and immersed tube tunnels worldwide is second to none. Our most notable statistics include, over $7 billion in tunnel projects delivered, employing 412 tunnel practitioners and engineers, nine TBMs currently in operation, and the successful transportation and immersion of 35 tunnel elements in the last 10 years.

We understand and appreciate the tremendous amount of work that CBBT has accomplished to date in gathering information, interviewing contractors, engineers and specialty consultants, and visiting similar projects currently under construction. The knowledge gained through these efforts has had a positive impact on the process and project providing significant benefits to CBBT. Through our team’s meetings with you, review of the engineering data, site visits, and reviewing your project objectives, we have gained a clear understanding of your vision for this project.
AWVC Tunnelbuilders – An Integrated Team - Structured for Success

AWVC Tunnelbuilders is a fully integrated joint venture with successful experience on complex design-build transportation/vehicular tunnel projects throughout North America and the world. These companies share a similar corporate culture focusing on safe project execution, quality, cost effectiveness, and customer satisfaction. Our relationship and structure is founded on our current success delivering the $764 million P3 Ohio River Bridge-East End Project. The significant technical challenges of your project will necessitate enhancing our existing organizational structure through the addition of a Technical Advisory Committee and Independent Design Review for the critical components of the project. This enhancement provides CBBT with additional safeguards and reduces risk on the most challenging aspects of the project.

**Lead Contractor**

Archer Western Construction and VINCI Construction Grands Projets, as an integrated joint venture will act in the role of Lead Contractor. They will be supported by Jay Cashman, Inc. who will be responsible for island construction, dredging and providing the marine equipment fleet. Leading our team’s marine logistics and immersion responsibilities is Strukton.

**Archer Western Construction.** A fourth generation family owned business dating back 117 years, this $4.2 billion per year construction company ranked as the largest bridge builder, the 2nd largest domestic heavy contractor, and the 3rd largest transportation contractor in the nation according to 2014 Engineering News Record. Their tunnel experience dates back 20 years to projects associated with the Ted Williams Tunnel in Boston as well as local portal and tunnel finishes projects in Hampton Roads. Archer Western has completed projects and maintained an active presence in the Northern Virginia and Tidewater area for the last 28 years.

**VINCI Construction Grands Projets.** Tracing its heritage back over 100 years, VINCI Construction Grands Projets with $54.1 billion in revenue is ranked as the 4th largest international contractor. They have completed some of the most challenging vehicular tunnel projects in the world including the $650 million Orseund immersed tunnel, the $750 million immersed Coentunnel, the $2.25 billion A86 Bored Tunnel, and the $710 million Cairo Metro with a 7.6 mile long bored tunnel.

AWVC provides CBBT with a team that can objectively analyze both tunnel options to provide you with the correct solution.
Jay Cashman, Inc. A nationally recognized marine contractor and dredging specialist, Cashman has successfully completed some of the most challenging and significant marine construction and dredging projects in North America, including dredging for Boston’s Central Artery “The Big Dig” Program.

Strukton. Known worldwide as an international leader in element immersion and marine transportation, Strukton has transported and immersed over 35 elements in the last 10 years and completed immersion projects throughout Europe, Asia, and the Far East. Coupled with Cashman’s marine fleet CBBT can be confident in our team’s ability to deliver an immersed solution.

Lead Designer

AECOM. The premier fully integrated professional and technical services firm AECOM is positioned to design, build, finance and operate infrastructure assets around the world for public and private-sector clients. With nearly 100,000 employees, AECOM is the #1 engineering design firm in Engineering News Record magazine’s annual industry rankings. The firm is a leader in all of the key markets that it serves, including transportation and tunneling. AECOM provides a blend of global reach, local knowledge, innovation and technical excellence in delivering customized and creative solutions that meet the needs of clients’ projects.

Ramboll. A leading Danish engineering, design, and consultancy company with 200 global offices and 10,000 dedicated specialists with proven international experience, Ramboll provides high standard, multidisciplinary solutions for all types of underground structure and has experience working on some of the world’s largest and most complex roadway tunnel projects.

General Qualifications

Archer Western and VINCI Construction Grands Projets are industry recognized leaders in delivering high profile complex design-build transportation projects across the world. Archer Western’s design-build revenue exceeded $1.671 billion in 2014 and included work on several mega projects (>-$750 million). Their $764 million Ohio River Bridge East End project includes twin vehicular tunnels and more importantly VINCI Construction Grands Projets as their joint venture partner.

VINCI Construction Grands Projets rank as the 4th largest international contractor, is a testament to their ability to win and deliver complex transportation projects throughout the world. They delivered the award winning $891 million Hallandas bored Tunnel in Sweden while completing the $945 million Thalys immersed tube tunnel in the Netherlands. Their ability to muster the technical expertise to complete multiple complex projects provides AWVC Tunnelbuilders with the additional technical resources to accomplish any task.
AECOM’s reputation and ranking as the largest provider of professional design services is founded on the successful delivery in the lead designer role on such prominent transportation projects as the $1.3 billion P3 I-595 Expressway Corridor Improvements in Florida, the $1.1 billion P3 SH 130 Segment 1-4 Project in Texas, and the $634 million design-build SR-91 Improvements Project with Archer Western in California. Their 400+ tunnel practitioners leads the engineering community and their design experience encompasses both bored and immersed tube methods.

Bored Tunnel Qualifications
The bored tunnel projects included in the work history section include examples of similar vehicular tunnels through challenging ground conditions and technical innovations that not only aided the project but made advances in the tunneling industry. The $2.2 billion design-build A86 Tunnel required a TBM that was capable of transitioning boring techniques as it encountered different soil conditions. The award winning $605 million Metro Gold Line Project used a shield grouting technique and type of TBM that virtually eliminated ground water intrusion. Design and construction personnel with first-hand experience and lessons learned from our projects will be made available and participate in the evaluation of a bored tunnel solution for CBBT.

Immersed Tube Tunnel Qualifications
Immersed tube tunnels require unique engineering experience and construction techniques. The projects included in the work history section demonstrate that this team has the qualifications and experience with this challenging tunnel solution. The $765 million design-build Coentunnel is nearly an identical example of the requirements and conditions of this project. It involved the placement of a new tube adjacent to an existing operating immersed tube tunnel. Additionally, the $735 million design-build Western Harbour Project involved immersed tubes and portals through recently reclaimed land similar to the conditions that will be encountered on the new islands constructed as a part of this project. Our team’s marine qualifications are bolstered by the local knowledge of Jay Cashman Construction and the logistics of transporting and immersing the tubes is reinforced by Strukton, a recognized international leader in transportation and immersion of tunnel elements. Strukton’s shared experience with VINCI Construction Grands Projets on the $945 million Thalys immersed tube tunnel brings a team familiarity and continuity to the evaluation of an immersed tunnel solution for CBBT.
Executive Summary

**Project Approach**

We recognize the work CBBT has accomplished aimed at reducing several of the major risks traditionally found on design-build mega-projects (political, environmental, right-of-way, geotechnical, and financial). Our strategy incorporates the results of your efforts and includes additional tasks, investigations, and tactics that verify the findings and offer additional data to provide CBBT confidence in our ultimate design solution and construction plan. Our approach to make the necessary financial and manpower investments needed to develop preliminary designs for both the bored and immersed tube tunnels, will be to analyze CBBT’s data and optimize the designs for constructability, thereby objectively determining the lowest cost, technically viable solution.

**Local Knowledge and History**

AWVC Tunnelbuilders is led by a long-established US-based firm with experience delivering the most challenging transportation construction projects dating back over 100 years. Archer Western, VINCI Construction Grands Projets, Jay Cashman, and AECOM have a strong local presence and a Tidewater connection dating back over 25 years to the Monitor-Merrimac Tunnel. This lineage provides CBBT with a team who understands the labor/subcontractor/vendor market, has a working knowledge and understanding of the regulatory requirements, and is prepared to apply this knowledge to achieve CBBT’s goal of delivering the most economical tunnel solution.

**Our Commitment**

AWVC Tunnelbuilders is dedicated to meet your goals and objectives through the assembly of a Best in Class team that desires and is committed to being your partner for the successful delivery of this technically challenging project. Delivering projects is about people, and we are committing our most technically competent design, construction, and management personnel from throughout the world that are excited to meet and exceed your expectations in every aspect of your Project. In fact, we already have internal teams “competing” to determine the optimal tunnel solution – bored or immersed tube.

We look forward to partnering with CBBT on this once in a generation project that will meet the overall objective of providing much needed flexibility in operations. We are committed to applying proven strategies to successfully design and build the Parallel Thimble Shoal Tunnel and appreciate the opportunity to submit our qualifications. We look forward to the next step of the selection process, ultimately designing and constructing the Parallel Thimble Shoal Tunnel for CBBT, and maintaining its designation as “One of the Seven Engineering Wonders of the Modern World”.

*North Shore Connector*

*Technical Expertise for either solution.*

*Oresund Tunnel*